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Bank of Canada
Monthly Research Update

May 2018

This monthly newsletter features the latest research publications by Bank of Canada economists. The report includes papers appearing in external publications and staff working papers published on the Bank of Canada's website.

PUBLISHED PAPERS

Forthcoming

Cociuba, Simone & Prescott, Edward C. & Ueberfeldt, Alexander, "US Hours at Work", Economic Letters

Ho, Anson T. Y. & Huynh, Kim P. & Jacho-Chavez, David T., "Using Nonparametric Copulas to Measure Crude Oil Price Co-movements", Energy Economics

STAFF WORKING PAPERS

Djeutem, Edouard & Dunbar, Geoffrey R., "Uncovered Return Parity: Equity Returns and Currency Returns", Bank of Canada Working Paper 2018-22

Goldman, Elena & Shen, Xiangjin, "Analysis of Asymmetric GARCH Volatility Models with Applications to Margin Measurement", Bank of Canada Working Paper 2018-21

Dunbar, Geoffrey R. & Jones, Casey, "The (Un)Demand for Money in Canada", Bank of Canada Working Paper 2018-20

Mayda, Anna Maria & Peri, Giovanni & Steingress, Walter, "The Political Impact of Immigration: Evidence from the United States", Bank of Canada Working Paper 2018-19

Chernoff, Alexander & Craig, Andrea, "Housing Price Network Effects from Public Transit Investment: Evidence from Vancouver", Bank of Canada Working Paper 2018-18

ABSTRACTS

US Hours at Work

We construct quarterly average hours worked for the US economy using Current Population Survey data on employed persons at work and their actual hours worked. Our measure of hours provides a novel alternative to the common practice of using data on all employed persons, which requires adjusting hours per employed with estimates of weeks worked. We also construct hours worked by age and gender to illustrate that our methodology can be applied to

subgroups of the working-age population, providing researchers with readily available long-run series of hours.

Using Nonparametric Copulas to Measure Crude Oil Price Co-movements

Tail dependence of crude oil price returns between four major benchmark markets are analyzed through the lenses of nonparametric copula models. This paper illustrates that nonparametric copula is flexible to incorporate important empirical patterns of tail dependence and provides better goodness-of-fit to the data than the optimal parametric copula. Estimation results show that the level and the structure of tail dependence of crude oil returns vary significantly depending on data frequency and the time period covered.

Uncovered Return Parity: Equity Returns and Currency Returns

We propose an uncovered expected returns parity (URP) condition for the bilateral spot exchange rate. URP implies that unilateral exchange rate equations are misspecified and that equity returns also affect exchange rates. Fama regressions provide evidence that URP is statistically preferred to uncovered interest rate parity (UIP) for nominal bilateral exchange rates between the US dollar and six countries (Australia, Canada, Japan, Norway, Switzerland and the UK) at the monthly frequency. An implication of URP is that commodity price changes that affect equity returns thus affect bilateral exchange rates through the equity channel. We find evidence that the Australian, Canadian, Norwegian (post 2001) and UK (post 1992) expected exchange rates increase via the oil-equity channel as oil prices rise, whereas the Japanese and Swiss expected exchange rates decrease.

Analysis of Asymmetric GARCH Volatility Models with Applications to Margin Measurement

We explore properties of asymmetric generalized autoregressive conditional heteroscedasticity (GARCH) models in the threshold GARCH (GTARCH) family and propose a more general Spline-GTARCH model, which captures high-frequency return volatility, low-frequency macroeconomic volatility as well as an asymmetric response to past negative news in both autoregressive conditional heteroscedasticity (ARCH) and GARCH terms. Based on maximum

likelihood estimation of S&P 500 returns, S&P/TSX returns and Monte Carlo numerical example, we find that the proposed more general asymmetric volatility model has better fit, higher persistence of negative news, higher degree of risk aversion and significant effects of macroeconomic variables on the lowfrequency volatility component. We then apply a variety of volatility models in setting initial margin requirements for a central clearing counterparty (CCP). Finally, we show how to mitigate procyclicality of initial margins using a three-regime threshold autoregressive model.

The (Un)Demand for Money in Canada

A novel dataset from the Bank of Canada is used to estimate the deposit functions for banknotes in Canada for three denominations: $1,000, $100 and $50. The broad flavour of the empirical findings is that denominations are different monies, and the structural estimates identify the underlying sources of the non-neutrality. There is evidence of large and significant deposit costs for the highest-value denomination, the $1,000 banknote, but insignificant costs for the $100 and $50 denominations. The results imply that the interest rate elasticity of deposit is positive for the $1,000 but negative for the $100 and the $50. Third, 5 percent of the $1,000, 30 percent of the $100 and 22 percent of the $50 banknotes ever issued by the Bank of Canada do not circulate through financial institutions (in Canada). Finally, we find evidence that the Lehman Brothers crisis increased the deposit probability by a factor of 2–3 for the $1,000 banknote for a majority of the population in Canada.

The Political Impact of Immigration: Evidence from the United States

In this paper we study the impact of immigration to the United States on the vote for the Republican Party by analyzing county-level data on election outcomes between 1990 and 2010. Our main contribution is to separate the effect of high-skilled and low-skilled immigrants, by exploiting the different geography and timing of the inflows of these two groups of immigrants. We find that an increase in the first type of immigrants decreases the share of the Republican vote, while an inflow of the second type increases it. These effects are mainly due to the local impact of immigrants on votes of U.S. citizens and they seem independent of the country of origin of immigrants. We also find that the pro-Republican impact of low-skilled immigrants is stronger in low-skilled and non-urban counties. This is consistent with citizens' political preferences shifting towards the Republican Party in places

where low-skilled immigrants are more likely to be perceived as competition in the labor market and for public resources.

Housing Price Network Effects from Public Transit Investment: Evidence from Vancouver

In this paper, we estimate the effect on housing prices of the expansion of the Vancouver SkyTrain rapid transit network during the period 2001–11. We extend the canonical residential sorting equilibrium framework to include commuting time in the household utility function. We estimate household preferences in the sorting model using confidential micro data and geographic information systems (GIS) data on the SkyTrain network. Using these preference estimates and observed data for 2001, we simulate the equilibrium effects of expanding the SkyTrain. In our counterfactual analysis, the SkyTrain expansion increases housing prices not only in neighborhoods where the expansion occurred, but also in those with access to pre-existing segments of the network. We show how these network housing price effects depend on household commuting patterns, and discuss the implications of our results for targeted taxation policies designed to capture the housing price appreciation stemming from a public transit investment.

UPCOMING EVENTS

Martin Ellison (University of Oxford), 15 June 2018
Organizer: Daniela Hauser (CEA)

Marco Lombardi (Bank for International Settlements), 25 June 2018
Organizer: José Dorich (CEA)

Yongsung Chang (University of Rochester), 6 July 2018
Organizer: Youngmin Park (CEA)

Richard Harrison (Bank of England), 25 July 2018
Organizer: Thomas Carter (CEA)

Matthias Kehrig (Duke University), 21 September 2018
Organizer: Dmitry Matveev (CEA)

Matthias O. Paustian (Federal Reserve Board), 12 October 2018
Organizer: Romanos Priftis (CEA)

Kevin Lim (University of Toronto), 12 October 2018
Organizer: Ben Tomlin (CEA)

Albert Queralto (Federal Reserve Board), 16 November 2018
Organizer: Martin Kuncl (CEA)